

Claims

1. A process for the production of an [<sup>18</sup>F]fluorohaloalkane which comprises  
5 treatment of a solid support-bound precursor of formula (I):



wherein n is an integer of from 1 to 7 and X is chloro, bromo or iodo;  
with <sup>18</sup>F<sup>-</sup> to produce the [<sup>18</sup>F]fluorohaloalkane of formula (II)



wherein n and X are as defined for the compound of formula (I), optionally followed by

- (i) removal of excess <sup>18</sup>F<sup>-</sup>, for example by ion-exchange chromatography; and/or  
15 (ii) removal of organic solvent.

2. A process for the production of an [<sup>18</sup>F]fluorohaloalkane according to claim 1  
wherein n is an integer of 1 to 4, preferably 1 or 2.

- 20 3. A process for the production of an [<sup>18</sup>F]fluorohaloalkane according to claim 1  
or 2 wherein the compound of formula (II) prepared is selected from  
[<sup>18</sup>F]fluorobromomethane, [<sup>18</sup>F]fluoroiodomethane, [<sup>18</sup>F]fluorobromoethane,  
[<sup>18</sup>F]fluoroiodoethane, [<sup>18</sup>F]fluorobromopropane, and [<sup>18</sup>F]fluoroiodopropane

- 25 4. A compound of formula (I) as defined in claim 1:



wherein n is an integer of from 1 to 7 and X is chloro, bromo or iodo.

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5. A compound of formula (I) according to claim 4 wherein n is an integer of from 1 to 4, and is preferably 1 or 2.

6. A radiosynthesis kit for the preparation of an [<sup>18</sup>F]fluorohaloalkane for use in PET chemistry, which comprises:

- 5 (i) a vessel containing a compound of formula (I) as defined in any one of claims 1  
to 3; and
- (ii) means for eluting the vessel with a source of <sup>18</sup>F<sup>-</sup>; and
- (iii) an ion-exchange cartridge for removal of excess <sup>18</sup>F<sup>-</sup>.

7. A cartridge for a radiosynthesis kit which comprises:

- 10 (i) a vessel containing a compound of formula (I) as defined in any one of claims  
1 to 3; and
- (ii) means for eluting the vessel with a source of <sup>18</sup>F<sup>-</sup>.